ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

MEMORANDUM

DATE: August 2, 1999

TO: Division File

FROM: Bruce Everetts - BOL/DRM/FSRS/SAU BE

SUBJECT: LPC # 1630200005- St. Clair County
Sauget Area 1
ILD # 981953623
SF/HRS

On June 28 - 30, 1999 the Illinois Environmental Protection Agency (Illinois EPA) conducted screening and sampling activities within the Dead Creek segment of the Sauget Area 1 site located in Cahokia and Sauget, Illinois. Representing the Illinois EPA were Brad Taylor, Ken Corkill, Ann Cross, and Bruce Everetts from the Site Assessment Unit and Candy Morin from the National Priorities List Unit.

The Sauget Area 1 site is comprised of three chemical waste disposal landfills, a waste impoundment, two abandoned gravel pits, and Dead Creek which flows into the Mississippi River. Most chemical disposal activities into Dead Creek occurred between 1930 and 1960, however intermittent wastewater discharges continued until at least 1990. Dead Creek has been divided into five segments which are illustrated in Attachment 1. The lower portion of Dead Creek, known as creek segment-F, contains a large wetland and was the focus of this particular activity by Illinois EPA.

Sediment samples were screened using the EnviroGard Polychlorinated Biphenyl (PCB) Test Kits. The EnviroGard Test Kit is a product of Strategic Diagnostics Incorporated located in Newark, Delaware. The samples were compared to a 1 ppm and 5 ppm standard. Sediment samples were also screened using a Niton 700 Series X-Ray Fluorescence (XRF) Multi-element Analyzer. The samples were screened in order to determine approximate levels and locations of contamination within Dead Creek. Following collection of the samples, each location was mapped using a Trimble Incorporated, Global Positioning Unit. Locations of each sample can be found in Attachment 3.

The preliminary screening information was used to determine where sediment samples were to be collected and submitted for analytical purposes. Descriptions and other relative information about each sample can be found in Attachment 2.

Samples X101 and X102 were selected to be used as representative sediment background samples. Analytical information from other sediment samples were compared to the highest levels of these two background samples. The background samples were collected within the northwest portion of the wetland which appears to be minimally influenced by Dead Creek.

Twelve sediment samples were submitted for PCB and inorganic analysis on June 30, 1999. The analysis was conducted by U.S. EPA's Central Regional Laboratory located in Chicago, Illinois. A summary of samples whose concentrations exceeded at least three times background levels can be found in Appendix 4. The complete laboratory package can be found in Appendix 6.

The June sampling activity indicated levels of Arochlor-1254 were significantly above background within samples X107, X108, X109, and X111. These four samples were collected from the wetland located within creek segment-F. Additional samples from other creek segments also indicated elevated levels of Arochlor-1254. Sample X111, the furthest downstream sample which indicated the migration of Arochlor-1254, is located approximately 2200 feet from the origin of the wetland.

Inorganic analysis also indicated the migration of contamination along Dead Creek thus impacting the wetland within creek segment-F. Specifically cadmium, copper, lead, nickel, mercury, and zinc were found in concentrations which significantly exceeded background levels. Samples X107, X108, X109, X111, and X112 document the presence of inorganic contamination within the sediments of the wetland. Sample X112, the furthest downstream sample which indicated inorganic contamination, is located approximately 3000 feet from the origin of the wetland.

Results of the sample analysis indicate that sediments within creek segment-F contain PCB and inorganic contaminants similar to those found in other up gradient creek segments. These contaminants are also found within other sources of the Sauget Area 1 site. It appears that the migration of these contaminants have impacted at least 3000 linear feet of the wetland located within creek segment-F. This does not take into account the total impacted area of the wetland. To get an accurate assessment of the area, additional measurements of the wetland are needed when the summer foliage is not present.

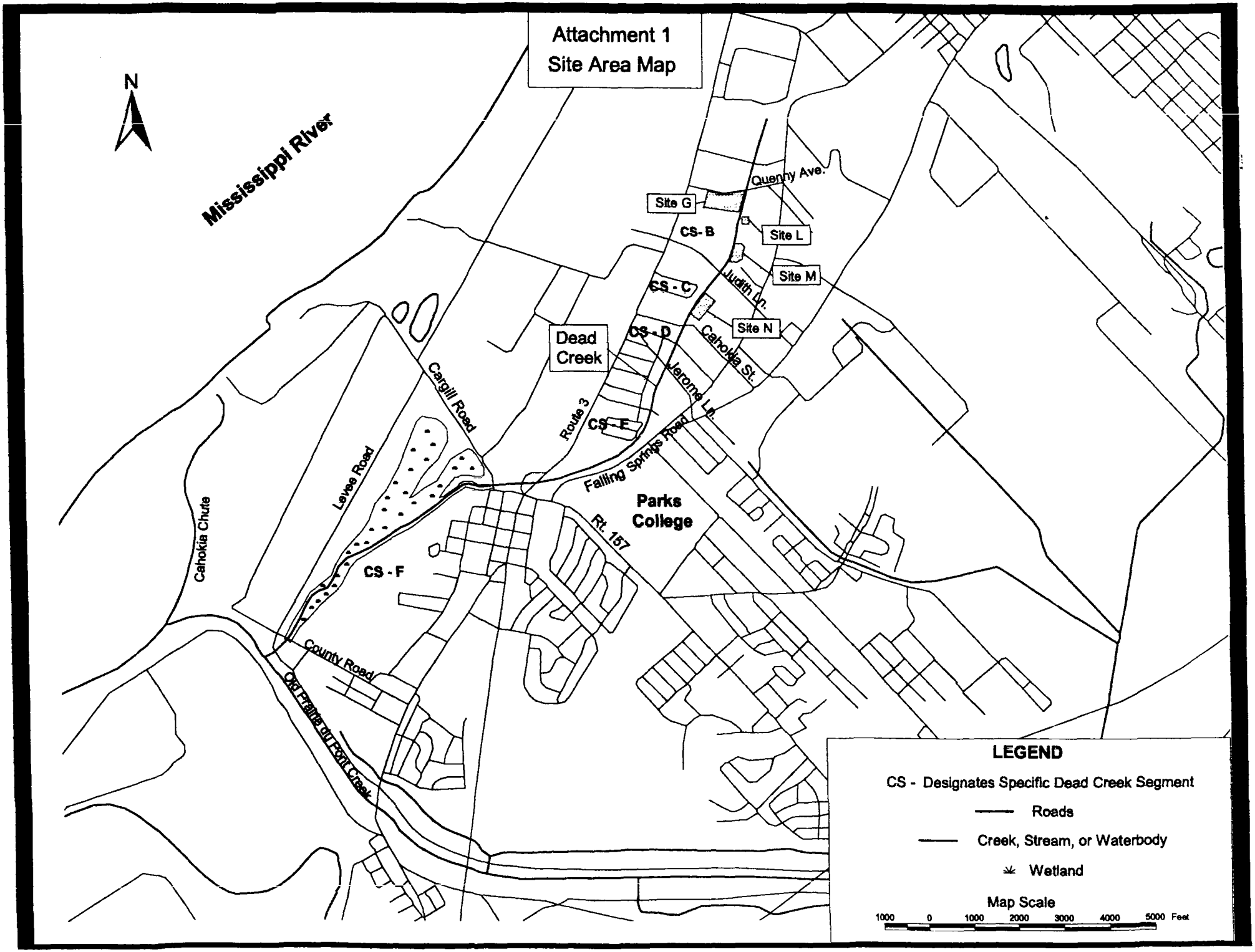
Attachments

Attachment 1 ..... Site Map
Attachment 2 ..... Sediments Sample Descriptions
Attachment 3 ..... Sample Location Map
Attachment 4 ..... Analytical Summary

Attachments con't

Attachment 5 ..... Illinois EPA Photographic Pages
Attachment 6 ..... Complete Laboratory Package

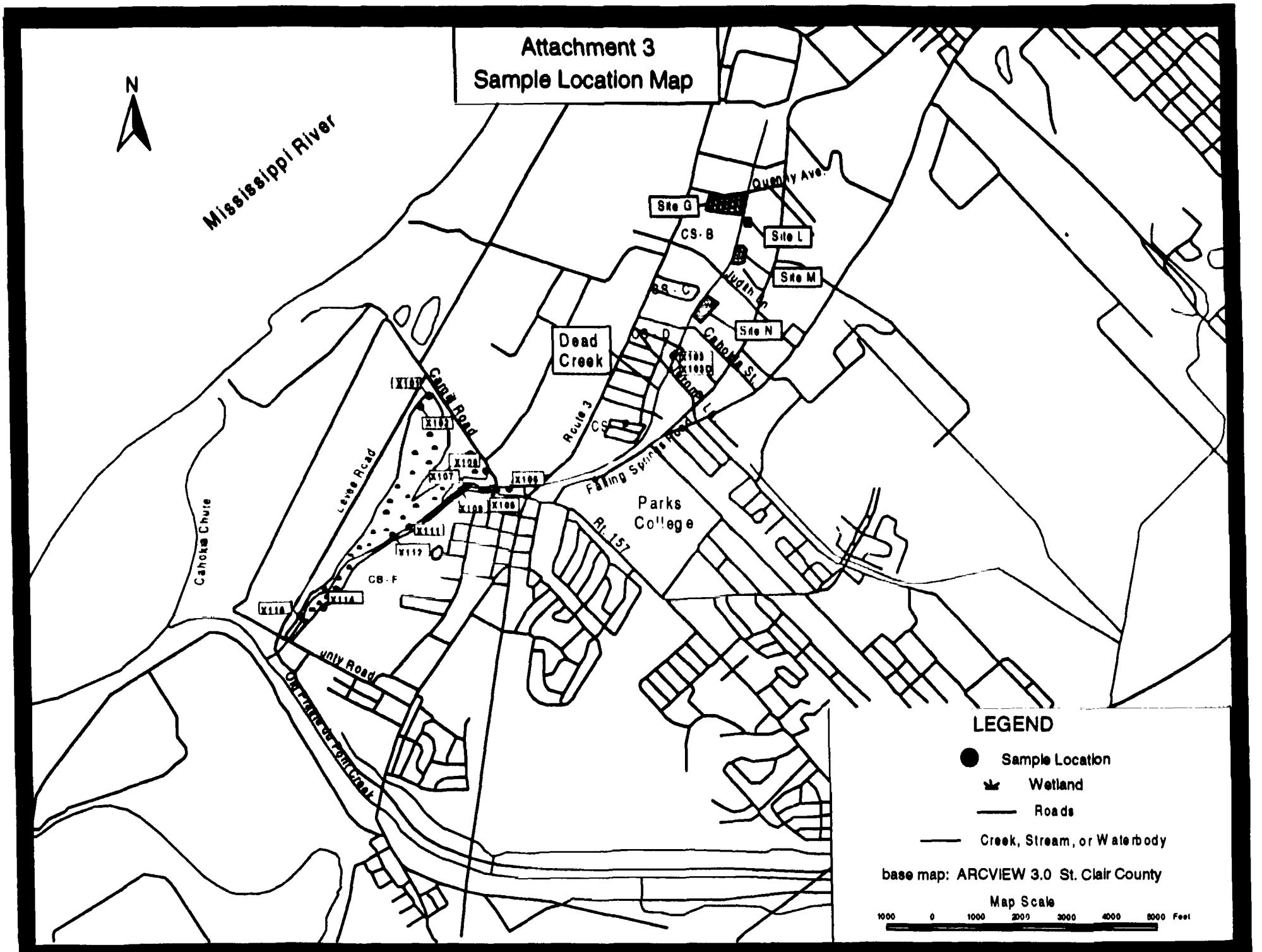
cc: **Jeanne Griffin - USEPA Region V w/ attachments 1 - 6**
Candy Morin - IEPA/NPL w/ attachments 1- 4
Clarence Smith - IEPA/FSRS - w/ attachments 1 - 4
Mike McAteer - USEPA Region V w/attachments 1 - 4


Attachment 1
Site Area Map
N
Mississippi River
Quenny Ave.
Site G
CS- B
Site L
Site M
CS - C
Judith Ln.
Site N
Dead Creek
CS - D
Cahokia St.
Jerome Ln.
Cargill Road
Route 3
CS - E
Falling Springs Road
Levee Road
Parks College
Rt. 157
Cahokia Chute
CS - F
County Road
Old Prairie du Pont Creek
LEGEND
CS - Designates Specific Dead Creek Segment
Roads
Creek, Stream, or Waterbody
Wetland
Map Scale
1000 0 1000 2000 3000 4000 5000 Feet

Attachment 2
Sediment Sample Descriptions

SAMPLE	DEPTH	APPEARANCE	APPROXIMATE LOCATION (please refer to sample location map for exact sample locations)
X101	2 - 6 inches	light gray silty clay with a slight amount of sand	within the north-west portion of the wetland in an area to represent background conditions
X102	0 - 4 inches	gray-brown silty sand	within the north-west portion of the wetland in an area to represent background conditions
X103 & X103-D	0 - 12 inches	dark brown silty clay	collected from Dead Creek, south of Kinder Street (Sample X103-D is a duplicate sample of X103)
X105	2 - 8 inches	dark brown fine silty clay	collected from Dead Creek, north-west of a house located at 100 1st Street and approximately 75 feet upstream of the abandoned eastern railroad bed
X106	1 - 8 inches	brown silt with a slight amount of sand and some clay	collected from Dead Creek, north-east of the Village of Cahokia - ESDA and Underwater Search and Rescue Building
X107	0 - 7 inches	dark brown silty clay	collected from the confluence of Dead Creek with a ponded portion of the wetland located south of Cargill Road
X108	8 - 12 inches	dark brown silty clay	collected from a large ponded portion of the wetland located south of Cargill Road
X109	8 - 12 inches	orange stained, brown silty clay with a trace of sand	collected from the Dead Creek wetland estimated to be 200 yards south of Cargill Road
X111	0 - 8 inches	dark brown silty clay	collected from the Dead Creek wetland (south of X109) and just north of a broken earthen dam across the creek
X112	0 - 8 inches	brown silty clay with a slight organic odor	collected from the Dead Creek wetland downstream of X111
X114	0 - 8 inches	brown silty clay	collected from the Dead Creek wetland estimated to be approximately 3/4 mile south of Cargill Road
X116	0 - 4 inches	gray silty clay	collected from the Dead Creek wetland estimated to be approximately 1000 feet north-east of County Road

*** all sample locations are illustrated on Attachment 3 (Sample Location Map)**


Attachment 3
Sample Location Map
N
Mississippi River
Site G
Site L
Site M
Site N
CS-B
CS-C
CS-D
CB-F
Dead Creek
Route 3
Parks College
Rt. 157
Cahokia Chute
Levee Road
Camp Road
Falling Springs Rd.
Cahokia St.
Quebec Ave.
X101
X102
X103
X104
X105
X106
X107
X108
X109
X110
X111
X112
X113
LEGEND
Sample Location
Wetland
Roads
Creek, Stream, or Waterbody
base map: ARCVIEW 3.0 St. Clair County
Map Scale
1000 0 1000 2000 3000 4000 5000 Feet

Attachment 4
Analytical Summary

IEPA SAMPLE ID	X101	X102	X103	X103-D	X105	X106	X107	X108	X109	X111	X112	X114	X116
FED LAB SAMPLE ID	99IE19S01 background	99IE19S02 background	99IE19S03	99IE19D01	99IE19S04	99IE19SO5	99IE19S06	99IE19S07	99IE19S08	99IE19S09	99IE19S10	99IE19S11	99IE19S12
PESTICIDES (ppm)													
Arochlor-1254	0.11 U	0.097 U	2.2 D	0.26 J	—	0.44	—	0.44	0.94	—	0.4	—	—
INORGANICS (ppm)													
Aluminum	6200	5200	—	—	—	—	—	—	12000	—	19000	21000	—
Antimony	0.5	0.4 U	2.3	3.2	—	—	—	4.6	21	6.5	2.4	—	—
Cadmium	2.9	1.2	28	28	—	10	—	16	31	78	71	—	—
Chromium	9.6	9.3	39	36	37	51	53	46	39	57	67	33	—
Copper	17	12	350	540	690	220	100	1600	4600	2500	480	—	—
Lead	74	36	—	290	—	550	—	310	430	560	1100	—	—
Mercury	0.11	0.04	0.59	1	0.5	0.7	—	0.8	1.7	3.2	1.8	—	—
Nickel	21	23	330	350	350	130	72	1900	1700	1000	620	—	—
Selenium	0.8 U	0.4 U	—	1	0.8	1	—	2.2	2.1	2.2	3.2	—	—
Silver	1.2 U	1.2 U	—	—	—	—	—	—	8.2	4.1	—	—	—
Thallium	0.4 U	0.4 U	0.4	—	—	—	—	0.5	0.5	—	—	—	—
Vanadium	10	13	—	—	—	—	53	40	—	—	45	42	—
Zinc	320	140	3500	3500	2200	1700	—	7800	8000	6800	5800	—	—

Data Qualifiers

— Indicates the analyte was undetected

U Indicates the analyte was undetected

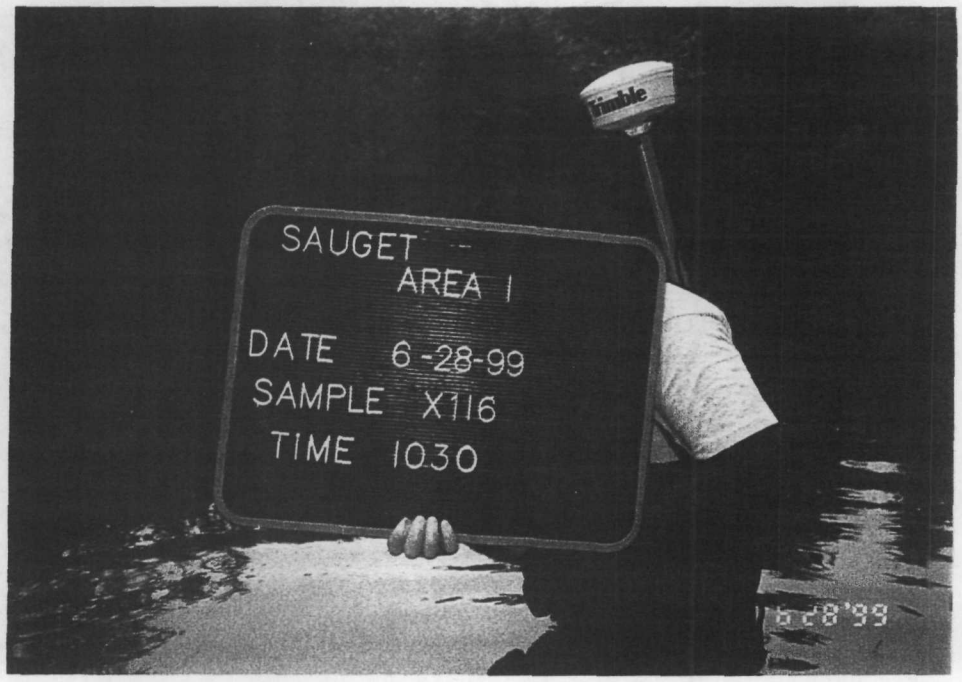
J Indicates an estimated value

D Analysis performed at a secondary dilution factor

ATTACHMENT 5
ILLINOIS EPA SAMPLE PHOTOGRAPHS

SITE NAME: Sauget Area 1	
CERCLIS ID: ILD 981 953 623	**COUNTY:** St. Clair

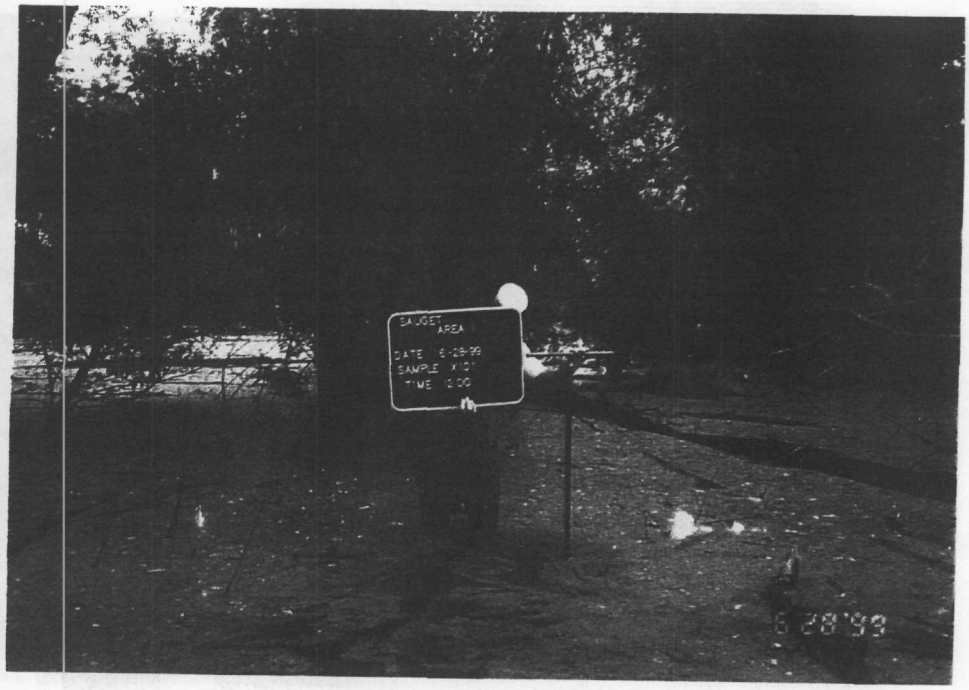
DATE: June 28, 1999
TIME: 10:30 a.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 1
ROLL NUMBER: 1
DIRECTION: Southeast
COMMENTS: Photo taken of sample X116 located in the wetland associated with Dead Creek (within creek segment-F)



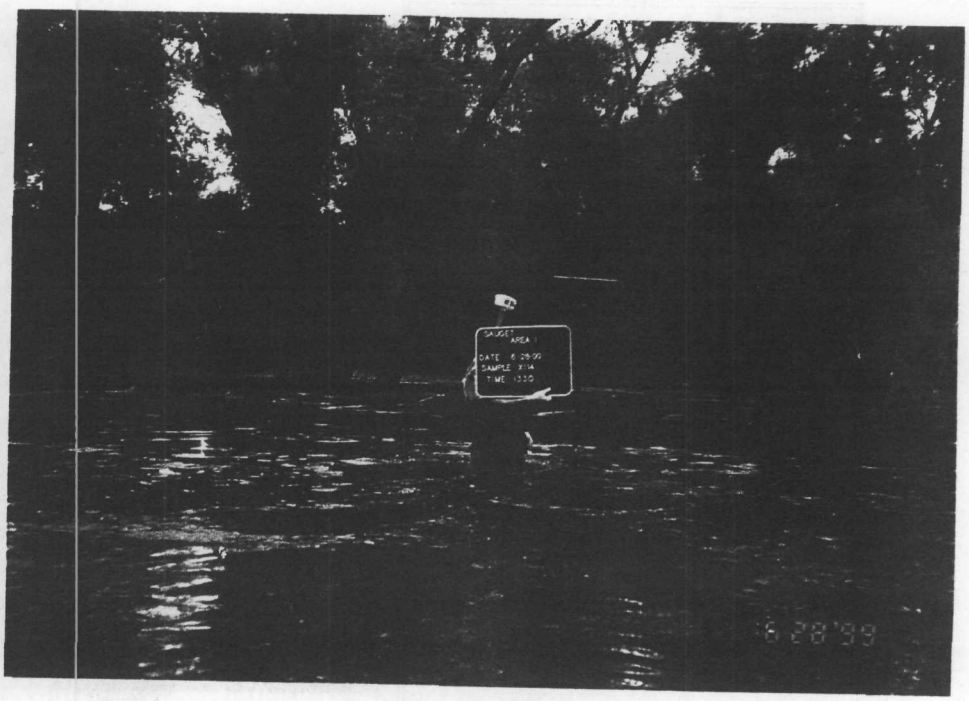
DATE: June 28, 1999
TIME: 11:40 a.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 2
ROLL NUMBER: 1
DIRECTION: E-southeast
COMMENTS: Photo taken of sample X102 located within the northwest portion of the wetland (intended to represent background conditions within creek segment-F)

SITE NAME: Sauget Area 1	
CERCLIS ID: ILD 981 953 623	**COUNTY:** St. Clair

DATE: June 28, 1999
TIME: 12:00 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 3
ROLL NUMBER: 1
DIRECTION: Southeast
COMMENTS: Photo taken of sample X101 located within the northwest portion of the wetland (intended to represent background conditions within creek segment-F)



DATE: June 28, 1999
TIME: 12:30 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 4
ROLL NUMBER: 1
DIRECTION: Southwest
COMMENTS: Photo taken of sample X114 located in the central portion of the large wetland associated with Dead Creek (creek segment-F)



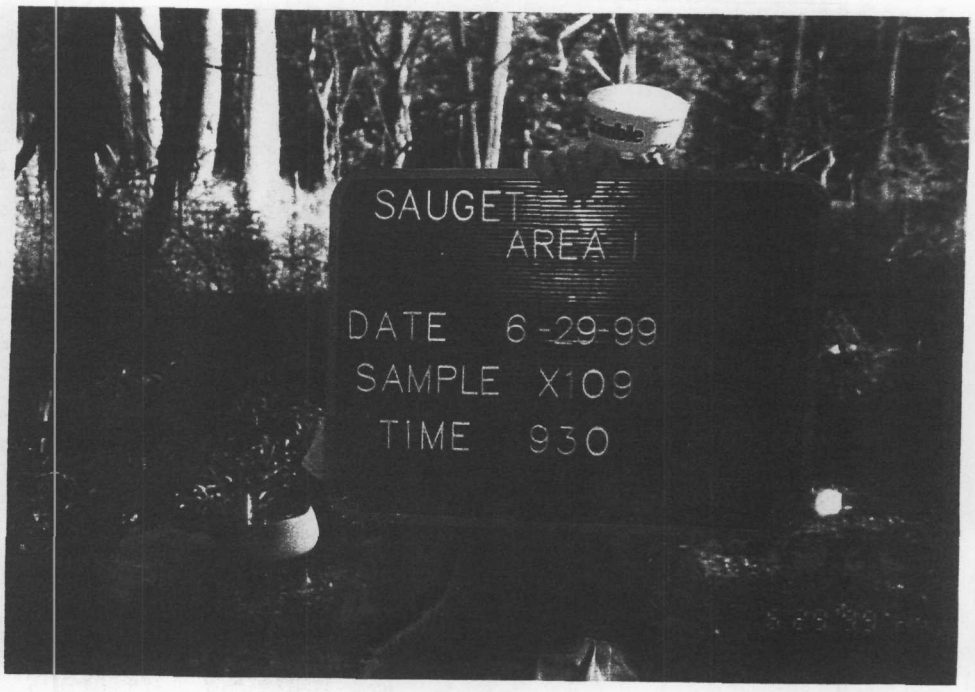
SITE NAME: Sauget Area 1	
CERCLIS ID: ILD 981 953 623	**COUNTY:** St. Clair

DATE: June 28, 1999
TIME: 3:00 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 5
ROLL NUMBER: 1
DIRECTION: West
COMMENTS: Photo taken of sample X112 within the wetland associated with Dead Creek (creek segment-F)

DATE: June 28, 1999
TIME: 3:30 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 6
ROLL NUMBER: 1
DIRECTION: West
COMMENTS: Photo taken of sample X111 within the wetland associated with Dead Creek (creek segment-F)

SITE NAME: Sauget Area 1	
CERCLIS ID: ILD 981 953 623	**COUNTY:** St. Clair

DATE: June 29, 1999
TIME: 9:30 a.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 7
ROLL NUMBER: 1
DIRECTION: West
COMMENTS: Photo taken of sample X109 within the wetland associated with Dead Creek (creek segment-F)



DATE: June 29, 1999
TIME: 10:30 a.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 8
ROLL NUMBER: 1
DIRECTION: South
COMMENTS: Photo taken of sample X108 located in a large ponded area located in the northeast portion of the wetland associated with Dead Creek (creek segment-F)

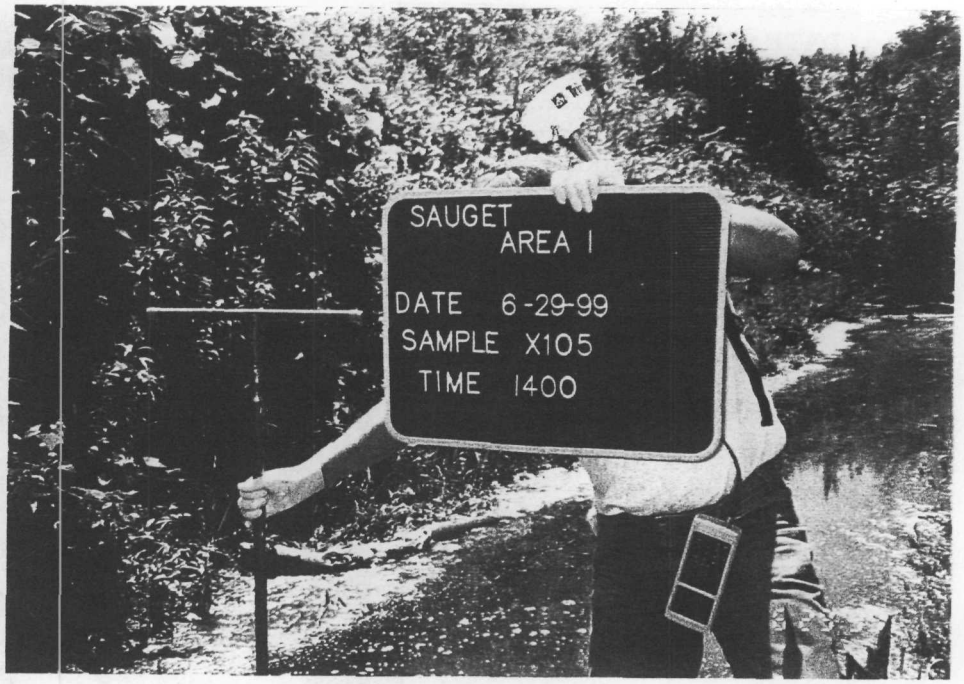
SITE NAME:	Sauget Area 1
CERCLIS ID:	ILD 981 953 623 **COUNTY:** St. Clair

DATE: June 29, 1999
TIME: 12:00 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 9
ROLL NUMBER: 2
DIRECTION: Southwest
COMMENTS: Photo taken of sample X107 located near the confluence of Dead Creek with the wetland area (creek segment-F)

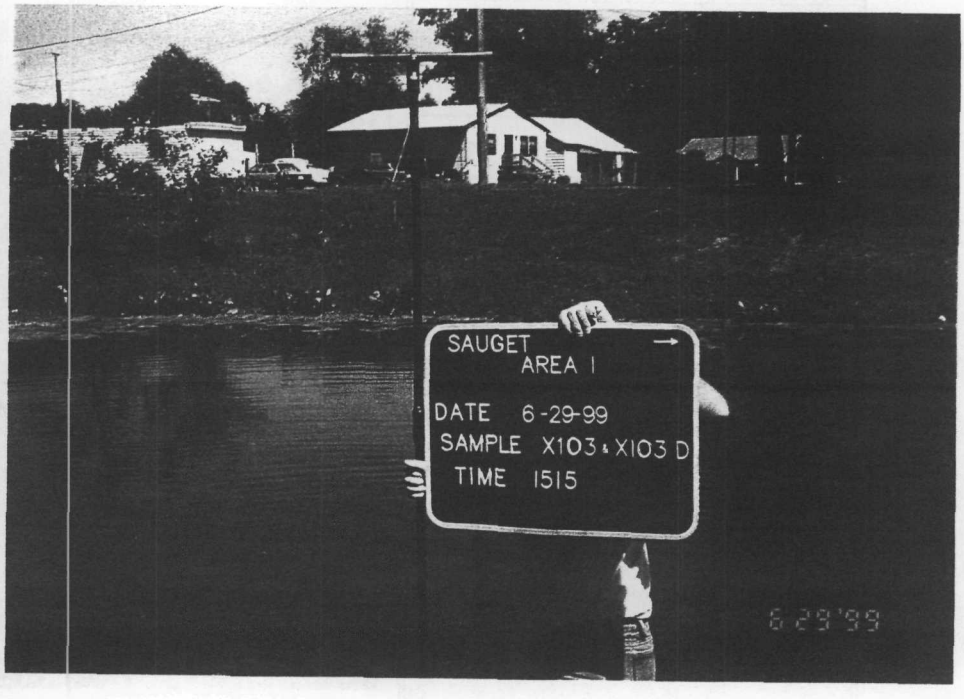
DATE: June 29, 1999
TIME: 12:30 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 10
ROLL NUMBER: 2
DIRECTION: E-northeast
COMMENTS: Photo taken of sample X106 located along Dead Creek, just northeast of the Village of Cahokia building (on 1st St.) (creek segment-F)

SITE NAME: Sauget Area 1	
CERCLIS ID: ILD 981 953 623	**COUNTY:** St. Clair

DATE: June 29, 1999
TIME: 2:00 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 11
ROLL NUMBER: 2
DIRECTION: Southwest
COMMENTS: Photo taken of sample X105 located within Dead Creek, southwest of a house located at 100 1st St. (creek segment-F)



DATE: June 29, 1999
TIME: 3:15 p.m.
PHOTO BY: Candy Morin
PHOTO NUMBER: 12
ROLL NUMBER: 2
DIRECTION: East
COMMENTS: Photo taken of sample X103/X103-D located just south of Kinder Street within Dead Creek (within creek segment-D) (sample X103-D is a duplicate sample of X103)



ATTACHMENT 6
ANALYTICAL LABORATORY PACKAGE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CENTRAL REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

Date: JUL 20 1999

Subject: Review of Region 5 ESAT Data for Sauget Area 1 PCBs

From: Charles T. Elly, Director Chuck Elly
Region 5 Central Regional Laboratory

To: IEPA

Attached are the results for project: Sauget Area 1 PCBs
CRL request number: 990086
for analyses for parameters: PCBs
Results are reported for sample designations: 99IE19S01 through -S03, -D03, -S04 through -S12 (13 sediment samples).

Results Status:

RECEIVED
JUL 28 1999
IEPA-BOL-FSRS

(X) Acceptable for Use:
( ) Data Qualified, but Acceptable for use:
( ) Data Unacceptable for Use:

Comments on Data Quality by Reviewer:

There were a few quality control problems for surrogate recoveries, lab QC check standard recoveries, matrix spike recoveries, and GPC spike recoveries that had a mix of high and low bias. No clear bias direction can be seen with these results, indicating that the data may be estimated for these samples, but probably not significantly.

Comments on Sample Results:

The sample results are acceptable for use. Aroclor 1254 was identified and quantitated in 8 of the 13 samples.

Comments by Laboratory Director or Quality Control Coordinator:

Reviewer and Date 7/14/99 (X) Reviewed ( ) Unreviewed

Team Leader and Date ( ) Reviewed (X) Unreviewed

QC Coordinator and Date 7/19/99 (X) Reviewed ( ) Unreviewed

Data Management Coordinator and Date Received

Date Transmitted: JUL 20 1999

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

After reviewing your data, please contact the CRL Sample Coordinator, George Schupp at 312-353-1226 for customer feedback. If you are EPA staff, you may use the Intranet on-line customer survey at:
http://www.r5intra.epa.gov/CRL/qa.html

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S01
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.11	U
11141-16-5	Aroclor 1232	0.11	U
53469-21-9	Aroclor 1242	0.11	U
12674-11-2	Arcclor 1016	0.11	U
12672-29-6	Aroclor 1248	0.11	U
11097-69-1	Aroclor 1254	0.11	U
11096-82-5	Aroclor 1260	0.11	U

Analyzed by: GK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S02
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	08-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.097	U
11141-16-5	Aroclor 1232	0.097	U
53469-21-9	Aroclor 1242	0.097	U
12674-11-2	Aroclor 101	0.097	U
12672-29-6	Aroclor 1248	0.097	U
11097-69-1	Aroclor 1254	0.097	U
11096-82-5	Aroclor 1260	0.097	U

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S03
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.093	U
11141-16-5	Aroclor 1232	0.093	U
53469-21-9	Aroclor 1242	0.093	U
12674-11-2	Aroclor 1016	0.093	U
12672-29-6	Aroclor 1248	0.093	U
11097-69-1	Aroclor 1254	2.2	D
11096-82-5	Aroclor 1260	0.093	U

Analyzed by: AA /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19D03
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.097	U
11141-16-5	Aroclor 1232	0.097	U
53469-21-9	Aroclor 1242	0.097	U
12674-11-2	Aroclor 1016	0.097	U
12672-29-6	Aroclor 1248	0.097	U
11097-69-1	Aroclor 1254	0.26	
11096-82-5	Aroclor 1260	0.097	U

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S04
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.098	U
11141-16-5	Aroclor 1232	0.098	U
53469-21-9	Aroclor 1242	0.098	U
12674-11-2	Aroclor 1016	0.098	U
12672-29-6	Aroclor 1248	0.098	U
11097-69-1	Aroclor 1254	0.086	J
11096-82-5	Aroclor 1260	0.098	U

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S05
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.088	U
11141-16-5	Aroclor 1232	0.088	U
53469-21-9	Aroclor 1242	0.088	U
12674-11-2	Aroclor 1016	0.088	U
12672-29-6	Aroclor 1248	0.088	U
11097-69-1	Aroclor 1254	0.44	
11096-82-5	Aroclor 1260	0.088	U

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S06
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.040	U
11141-16-5	Aroclor 1232	0.040	U
53469-21-9	Aroclor 1242	0.040	U
12674-11-2	Aroclor 1016	0.040	U
12672-29-6	Aroclor 1248	0.040	U
11097-69-1	Aroclor 1254	0.091	
11096-82-5	Aroclor 1260	0.040	U

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S07
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.091	U
11141-16-5	Aroclor 1232	0.091	U
53469-21-9	Aroclor 1242	0.091	U
12674-11-2	Aroclor 1016	0.091	U
12672-29-6	Aroclor 1248	0.091	U
11097-69-1	Aroclor 1254	0.44	
11096-82-5	Aroclor 1260	0.091	U

Analyzed by: RK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S08
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.074	U
11141-16-5	Aroclor 1232	0.074	U
53469-21-9	Aroclor 1242	0.074	U
12674-11-2	Aroclor 1016	0.074	U
12672-29-6	Aroclor 1248	0.074	U
11097-69-1	Aroclor 1254	0.94	
11096-82-5	Aroclor 1260	0.074	U

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S09
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.087	U J
11141-16-5	Aroclor 1232	0.087	U J
53469-21-9	Aroclor 1242	0.087	U J
12674-11-2	Aroclor 1016	0.087	U J
12672-29-6	Aroclor 1248	0.087	U J
11097-69-1	Aroclor 1254	0.087	U J
11096-82-5	Aroclor 1260	0.087	U J

AK 7/15/99

Analyzed by: AK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S10
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	09-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.13	U
11141-16-5	Aroclor 1232	0.13	U
53469-21-9	Aroclor 1242	0.13	U
12674-11-2	Aroclor 1016	0.13	U
12672-29-6	Aroclor 1248	0.13	U
11097-69-1	Aroclor 1254	0.40	
11096-82-5	Aroclor 1260	0.13	U

Analyzed by: RL /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S11
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	06-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.089	U
11141-16-5	Aroclor 1232	0.089	U
53469-21-9	Aroclor 1242	0.089	U
12674-11-2	Aroclor 1016	0.089	U
12672-29-6	Aroclor 1248	0.089	U
11097-69-1	Aroclor 1254	0.089	U
11096-82-5	Aroclor 1260	0.089	U

Analyzed by: RK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

CRL REGION V
FINAL RESULTS REPORT
Parameter:PEST/PCB

Sample organization:	Superfund	Sample batch ID:	990086
Sample requestor:	IEPA	Account Number:	TFA 301
Facility:	Sauget Area 1	Sample ID:	99IE19S12
Matrix:	Soil	Units:	µg/gm
Date Collected:	28-JUN-99	Date Received:	01-JUL-99
Date Extracted:	08-JUL-99	Date Analyzed:	11-JUL-99

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
11104-28-2	Aroclor 1221	0.058	U
11141-16-5	Aroclor 1232	0.058	U
53469-21-9	Aroclor 1242	0.058	U
12674-11-2	Aroclor 1016	0.058	U
12672-29-6	Aroclor 1248	0.058	U
11097-69-1	Aroclor 1254	0.058	U
11096-82-5	Aroclor 1260	0.058	U

Analyzed by: RK /Lockheed/ESAT

Team Leader: _____

U = undetected
D = diluted

To:	Babu Paruchuri, Work Assignment Manager
For Transmittal to:	Erlinda Evangelista, CRL Pesticide/PCB Group Leader
From:	Robert D. Kuhajda, ESAT Organic Analytical Chemist
Thru:	Dennis Miller, ESAT Team Manager
Date:	07/14/99
Subject:	PCB Analytical Data Package: Sauget Area 1 Samples (Data Set SF 990086)
Work Assignment:	05-99-3-03 TDF: 5103-116
Contract No.:	68D60002

CASE NARRATIVE

DATE: July 14, 1999

PROJECT NAME: Sauget Area 1 Samples /CRL Case #: SF 990086; PCB Analysis

ANALYST: Robert D. Kuhajda, ESAT Organic Chemist

REVIEWERS: Ziyad Rajabi, ESAT Organic Group Leader
Dennis Miller, ESAT Team Manager
Babu Paruchuri, EPA Work Assignment Manager

I. CASE DESCRIPTION:

The laboratory received 13 soil samples 99IE19S01-12 and D03 on July 01, 1999. The samples were analyzed for PCBs using CRL Method 8080. The samples were extracted July 06 through 09, 1999 utilizing Soxhlet procedures. GPC clean-ups were performed for all sample extracts. The sample extracts were analyzed on July 11, 1999 using GC/EC #8. This GC uses the Restek CLP-Pest (front) and CLP-Pest2 (rear) columns. Calibration and other QC results were better on the CLP-Pest2 column and results are reported from this column.

II. INSTRUMENT QUALITY CONTROLS:

1. **Instrument Performance Check:**
Initial and continuing Endrin and DDT degradation checks for the primary and confirmatory columns were not required for PCB analysis.

2. **Initial Calibration Check (IC):**
An acceptable initial calibration is required before samples can be analyzed. Initial calibration were generated for Aroclor 1242, 1254, TCMX and DCB. Correlation coefficients were 0.995 or higher for all analytes on both columns except for Aroclor 1242-H (0.994) and TCMX (0.980) on the CLP-Pest column. A contaminant was present in the level 2 calibration standard for Aroclor 1254. This contaminant interfered with 1254-B & C peaks on the CLP-Pest column. Four point calibrations were used for these two Aroclor 1254 peaks.

3. **QC Check Standard Recoveries (QC):**
QC check standard recoveries for Aroclor 1242 congeners were acceptable (80 - 120%) for both columns except for 1242-B on the CLP-Pest column (124%) and 1242-A on the CLP-Pest2 column (123%). QC check standard recoveries for TCMX and DCB were acceptable (80-

120%) for both columns except DCB on the CLP-Pest column (68%). QC check standard recoveries for Aroclor 1254 congeners were high, ranged from 133% to 177% on the CLP-Pest column and 120 to 133% for the CLP-Pest2 column.

4. **Calibration Verification Standards Check (CVS):**
Level 3 Aroclor 1254 calibration verification check standards had acceptable %Ds of <15% for both columns.
Level 3 Aroclor 1242 calibration verification check standards had acceptable %Ds of <15% for both columns except for file 07119922.D, for the CLP-Pest column, 1242-G(16%) and 1242-H(16%) and for file 07119941.D; for the CLP-Pest column; 1242-D (19%), 1242-E (16%), 1242-F (22%), 1242-G (24%) and 1242-H (29%).
Level 3 TCMX /DCB calibration verification check standards had acceptable %Ds of <15% for both columns except for file 07119905.D on the CLP-Pest column DCB (35%) and file 07119942.D DCB (17%) on both columns. All were analyzed within the required 12 hour period.

5. **Retention time (RT) Summary:**
The retention time %Ds for each individual compound in standards ranged between 0.00% to 0.11% for both columns.

III. METHOD QUALITY CONTROL:

1. **Method Blank Results:**
No target analytes were detected above the method detection limit in method blanks, GPC blanks or the acid blank.

2. **Surrogate Spike Compound Results:**
TCMX surrogate spike recoveries were below QC limits (50-150%) for sample 99IE19S09 (40% & 20%) for the CLP-Pest and CLP-Pest2 columns respectively and S04MS (20%) for the CLP-Pest2 column.
DCB surrogate spike recoveries were below QC limits (50-150%) for sample 99IE19S09 (30 & 20%) for the CLP-Pest and CLP-Pest2 columns respectively. Most extracts reported DCB surrogate recoveries high.

3. **Laboratory Control Sample /Laboratory Control Sample Duplicate (LCS/LCSD):**
The LCS/LCSD recoveries for July 6, 1999 were within QC limits of 50-150%. The LCS/LCSD % RPD was acceptable.
The LCS/LCSD recoveries for July 8, 1999 were outside QC limits 336% and 374%, 300% and 314% respectively. The LCS/LCSD % RPD was acceptable.
The LCS/LCSD recoveries for July 9, 1999 were unusable. The wrong standard was used for spiking (see control for this date).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: JUL 14 1999

Subject: Review of Region 5 Data for Sauget Area I - Dead Creek Area G Code:058E

From: Charles T. Elly, Director
Region 5 Central Regional Laboratory Dennis Wesolowski for

To: IEPA

Attached are the results for Sauget Area I - Dead Creek Area G Code:058E
CRL request number 990086
for analyses for Antimony, Arsenic, Cadmium, Selenium and Thallium
Results are reported for sample designations: 99IE19S01, 99IE19S02, 99IE19S03, 99IE19D03, 99IE19S04, 99IE19S05, 99IE19S06, 99IE19S07, 99IE19S08, 99IE19S09, 99IE19S10, 99IE19S11 and 99IE19S12

Results Status:
(x) Acceptable for Use
(x) Data Qualified, but Acceptable for use for Antimony
( ) Data Unacceptable for Use

Comments on Data Quality by Reviewer

All lead results were reported from the ICP analysis, as were the cadmium results for all samples except for samples 99IE19S02, 99IE19S11 and 99IE19S12. Cadmium for those three samples was reported from this GFAA report. Antimony matrix spike recoveries were poor (52% and 44%), but that is normal for the type of digestion used. Antimony results may be biased low. Arsenic was reanalyzed on a different instrument to avoid an interference situation. The results obtained are acceptable.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for Sauget Area I - Dead Creek Area G Code:058E

13 July 99

Peer/Task Monitor Review and Date (X) Reviewed ( ) Unreviewed

17 July 99

Team Leader and Date (X) Reviewed ( ) Unreviewed

7/13/99

QC Coordinator and Date (X) Reviewed ( ) Unreviewed

Sylvia Griffin JUL 14 1999

Data Management Coordinator and Date Received

Date Transmitted JUL 14 1999

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

Method Number: GFAA Metals
Date Generated: July 13, 1999
Author: Marjie Mattox

Site Name: Sauget Area I - Dead Creek
Charge Number(s): ESE51106
TDF Number: 5104-245
WAD Number: 05-99-3-04

GFAA NARRATIVE for Data Set 990086

Thirteen soil samples, 99IE19S01-S03, 99IE19D03, and 99IE19S04-S12, were collected from the Sauget Area I - Dead Creek site. All samples were submitted for the analysis of arsenic, lead, cadmium, thallium, antimony, and selenium by GFAA. The samples were collected on 06/28/99, 06/29/99, and were received by the CRL on 07/01/99. The samples were part of data set 990086.

Sample tag numbers were labeled with the prefix 99IE09 for this sample set, therefore, raw data information was labeled with the prefix 99IE09. Upon cross checking with sample receiving information it was found that the sample numbers should contain the prefix 99IE19. The final results are reported using this prefix. Sample 99IE19D03 is listed as 99IE09D01 in the raw data

The samples were digested following standard CRL GFAA digestion protocols. The samples were digested on 07/06/99.

Analytical results were stored in database files: 070799-5100E, 070899-5100E, and 070899A-5100E for selenium; 070699-5100E and 070799-5100E for cadmium; 070699-5100W and 070799-5100W for thallium; 070899-5100W for antimony; and, 070899-5100E, 070999-5100E and 071299-5100E for arsenic.

Selenium, Lead, Cadmium, Thallium, and Arsenic analysis went without incident. The Antimony spike recovery (52%, 44%) indicate a low bias therefore antimony results should be considered estimated.

All other QC was within the specified control limits.

Acceptable results for lead, cadmium, thallium, selenium, and arsenic were obtained for the samples.

Narrative by: M. Mattox ESAT
Date: 7/12/99

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL RESULT REPORT FOR THE TEAM: METALS

DIVISION/BRANCH: SUPERFUND SAMPLING DATE: 6/28-29/99 LAB ARRIVAL DATE: 7/1/99 DUE DATE: 7/8/99
DU NUMBER: TFA DATASET NUMBER: 990086 STUDY: Sauget Area 1 - Dead Creek PRIORITY: Routine LABORATORY: ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	SOIL LEAD (MG/KG)	SOIL SELENIUM (MG/KG)	SOIL ARSENIC (MG/KG)	SOIL CADMIUM (MG/KG)	SOIL THALLIUM (MG/KG)	SOIL ANTIMONY (MG/KG)
1	99IE19S01	X101	ICP	0.8U	26	ICP	0.4U	0.5
2	99IE19S02	X102	ICP	0.4U	6.6	1.2	0.4U	0.4U
3	99IE19S03	X103	ICP	0.6	12	ICP	0.4	2.3
4	99IE19D03	X103D	ICP	1	12	ICP	0.4U	3.2
5	99IE19S04	X105	ICP	0.8	8.9	ICP	2U	0.9
6	99IE19S05	X106	ICP	1	5.2	ICP	0.4U	1
7	99IE19S06	X107	ICP	0.5	11	ICP	0.4U	0.8U
8	99IE19S07	X108	ICP	2.2	8	ICP	0.5	4.6
9	99IE19S08	X109	ICP	2.1	27	ICP	0.5	21
10	99IE19S09	X111	ICP	2.2	27	ICP	0.4U	6.5
11	99IE19S10	X112	ICP	3.2	6.3	ICP	0.4U	2.4
12	99IE19S11	X114	ICP	0.7	6.3	0.71	0.4U	0.8U
13	99IE19S12	X116	ICP	0.7U	2.2	0.30	0.3U	0.8U
DATE OF ANALYSIS		7/12/99		7/7/99, 7/8/99	7/8/99, 7/9/99 7/12/99	7/6/99,7/7/99	7/6/99, 7/7/99	7/8/99
ANALYST		M. Mattox		S. Connet	S. Connet/M. Mattox	S. Connet	S. Connet	S. Connet

Reviewed by: _____ Date: 13 July 99

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: JUL 12 1999

Subject: Review of Region 5 Data for **SAUGET AREA I - DEAD CREEK**

From: Charles T. Elly, Director Charles T. Elly
Region 5 Central Regional Laboratory

To: IEPA

Attached are the results for **SAUGET AREA I - DEAD CREEK**
CRL request number **990086**
for analyses for **Cyanide** and **Mercury**.
Results are reported for sample designations: 99IE19S01, 99IE19S02, 99IE19S03, 99IE19D03, 99IE19S04, 99IE19S05, 99IE19S06, 99IE19S07, 99IE19S08, 99IE19S09, 99IE19S10, 99IE19S11, and 99IE19S12.

Results Status:
(X) Acceptable for Use: **Cyanide**
(X) Data Qualified, but Acceptable for use: **Mercury**
( ) Data Unacceptable for Use:

RECEIVED
JUL 15 1999
IEPA-BOL-FSRS

Comments on Data Quality by Reviewer:

All the soil samples submitted for cyanide and mercury analyses were assayed and the results are attached. Required quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within the limits with the following exceptions;

Mercury analysis:
Calibration curve: The correlation coefficient r was found to be 0.992 yielding r^2 value of 0.985. The minimum acceptable value is $r = 0.9975$ or $r^2 = 0.995$. This indicates a lack of fit in the first degree. The problem could be caused by unstable instrument conditions. The organic calibration verification standard had recoveries of 116.9%, 120.4%, 126.5%, and 129.9% respectively during the analysis. The limit is 86.7% to 113.3%. This indicates a high bias in the analysis. The inorganic calibration verification standard and all other audits were within the limits.

The concentrations of mercury in the above samples were determined to be above detection. The accuracies of the results are affected by the degree of fit of the calibration curve. Use the data with caution. All the cyanide results are acceptable for use.

Comments on Sample Results:

The sample results are acceptable for use.

Comments by Laboratory Director or Quality Control Coordinator:

Francis A. Awanya 7/9/99
Review and Date (X) Reviewed ( ) Unreviewed

9 July 99
Team Leader and Date (X) Reviewed ( ) Unreviewed

7/9/99
QC Coordinator and Date (X) Reviewed ( ) Unreviewed

Sylvia Griffin JUL 12 1999
Data Management Coordinator and Date Received

Date Transmitted JUL 12 1999

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

Method: 245.5 *DNS
Site: Sauget Area I - Dead Creek
Date: July 7, 1999

TDF: 5104-245
PWO: ESE51106
WAD: 05-99-3-04

NARRATIVE

Thirteen soil samples, (data set 990086), were collected on 06/28-29/99 and were received by the CRL on 07/01/99. These samples were submitted for mercury analysis. Method 245.5 was used for the analysis procedure. The samples were digested on 07/02/99 and the digests were analyzed on 07/06/99. The initial calibration curve had a linear regression correlation coefficient of 0.992. When compiling data it was discovered that the linear regression correlation coefficient for the initial calibration was "r", the SOP states that the "r squared" value is used and this was found to be 0.985. The LCMO value was found to be biased high, therefore, the mercury analysis results are considered to be estimated.

Sample tag numbers were labeled with the prefix 99IE09 for this sample set, therefore, raw data information was labeled 99IE09. Upon cross checking with sample receiving information it was found that the sample numbers should contain the prefix 99IE19. The final results are reported using this prefix. Sample 99IE19D03 is listed as 99IE09D01 in the raw data.

The spike and duplicate QC audit was acceptable.

H. Mattop 7/7/99

Method: 335.2NS
Site: Sauget Area I-Dead Creek
Date: July 6, 1999

TDF: 5104-228
PWO: ESE51106
WAD: 05-99-3-04

NARRATIVE

Eighteen water samples from Sauget Area I-Dead Creek (data set SF990086) were collected on 06/28-29/99 and were received by CRL on 07/01/99. These samples were assigned to ESAT for cyanide analysis. All samples were distilled using the Easystill distillation method on 07/06/99. The samples were analyzed on 07/06/99 for cyanide using a Lachat 8000 Autoanalyzer according to CRL methods. All samples were analyzed within the 14-day holding time limit.

A control sample was analyzed and was reported at 100 µg/L. No limit was established for the control sample. All QC audits were in control; all sample results are acceptable.

Since RLIMS was unavailable, the results are reported in a word-processing document only. Time will be necessary in the future to enter all results into RLIMS.

S Tichin
7/7/99

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORY
FINAL R SULT REPORT FOR THE TEAM: MINERAL/NUTRIENTS

DIVISION/BRANCH: SUPERFUND **SAMPLING DATE:** 06/28-29/99 **LAB ARRIVAL DATE:** 07/01/99 **DUE DATE:** 07/08/99
DU NUMBER: 501 **DATASET NUMBER:** 990086 **STUDY:** Sauget Area I **PRIORITY:** I **LABORATORY :** ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	SOIL CYANIDE (mg/Kg)			
1	99IE19S01	X101	1 U			
2	99IE19S02	X102	0.7 U			
3	99IE19S03	X103	0.6 U			
4	99IE19D03	X103D	0.6 U			
5	99IE19S04	X105	0.6 U			
6	99IE19S05	X106	0.8 U			
7	99IE19S06	X107	0.7 U			
8	99IE19S07	X108	0.9 U			
9	99IE19S08	X109	0.8 U			
10	99IE19S09	X111	0.8 U			
11	99IE19S10	X112	1 U			
12	99IE19S11	X114	0.6 U			
13	99IE19S12	X116	0.6 U			
DATE OF ANALYSIS		7/8/99				
ANALYST		S Tobin				

Reviewed by: Francis A. Arvanyd Date: 7/9/99

ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL REGIONAL LABORATORYFINAL RESULT REPORT FOR THE TEAM: METALS

DIVISION/BRANCH: SUPERFUND SAMPLING DATE: 6/28-29/99 LAB ARRIVAL DATE: 7/1/99 DUE DATE: 7/8/99
DU NUMBER: TFA DATASET NUMBER: 990086 STUDY: Sauget Area I - Dead Creek PRIORITY: Routine LABORATORY :ESAT

	CRL LOG NUMBER	SAMPLE DESCRIPTION	SOIL MERCURY (MG/KG)
1	991E19S01	X101	0.11
2	991E19S02	X102	0.04
3	991E19S03	X103	0.59
4	991E19D03	X103D	1.0
5	991E19S04	X10[illegible]	0.50
6	991E19S05	X10[illegible]	0.70
7	991E19S06	X107	0.1
8	991E19S07	X10[illegible]	0.80
9	991E19S08	X10[illegible]	1.7
10	991E19S09	X111	3.2
11	991E19S10	X112	1.8
12	991E19S11	X114	0.09
13	991E19S12	X116	0.04
DATE OF ANALYSIS		7/7/99	7/5/99
ANALYST		M. Mattox	M. Mattox

Reviewed by: Frances A. Iwamiya Date: 7/9/99

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: JUL 12 1999

Subject: Review of Region 5 Data for Sauget Area I - Dead Creek Area G Code:058E

From: Charles T. Elly, Director Chuck Elly
Region 5 Central Regional Laboratory

To: IEPA

Attached are the results for Sauget Area I - Dead Creek Area G Code:058E
CRL request number 990086
for analyses for ICP
Results are reported for sample designations: 99IE19S01, 99IE19S02, 99IE19S03, 99IE19D03, 99IE19S04, 99IE19S05, 99IE19S06, 99IE19S07, 99IE19S08, 99IE19S09, 99IE19S10, 99IE19S11 and 99IE19S12

Results Status:
(x) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use

RECEIVED
JUL 15 1999
IEPA-BOL-FSRS

Comments on Data Quality by Reviewer

For vanadium, the initial and final instrument blanks were above the reporting limit of 5 µg V/L (5.3 and 6.4 µg V/L, respectively). However, the lowest concentration sample is ten times the reporting limit for vanadium, so the effect of this QC audit flag is minimal. Both the second instrument blank and both digestion blanks were below the limit. All lead results were reported from this ICP analysis, and cadmium was reported for all samples except for samples 99IE19S02, 99IE19S11 and 99IE19S12. Cadmium for those three samples was reported by GFAA.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for Sauget Area I - Dead Creek Area G Code 058E

John V. Moore 12 July 99

Peer/Task Monitor Review and Date (✓) Reviewed ( ) Unreviewed

John V. Moore 12 July 99

Team Leader and Date (✓) Reviewed ( ) Unreviewed

7/12/99

QC Coordinator and Date (✓) Reviewed ( ) Unreviewed

Sylvia Griffin JUL 12 1999

Data Management Coordinator and Date Received

Date Transmitted JUL 12 1999

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments

7-8-99

Method Number: _200.7_____ Site Name: Sauget Area I - Dead Creek
Date Generated: July 8, 1999 _____ Work Unit Number: 05-99-3-04_
Author: _R.Dilg,Lockheed-ESAT_____ TDF Number: 5104-245_____
Charge Number: ESE-51-106____

ICP NARRATIVE

This narrative covers the analysis of 13 soil samples from batch (990086) from the named site sampled for the determination of ICP metals' analysis.

Data Set	Sample Nos.
990086	99IE19S01, S02, S03, D03, S04, S05, S06, S 7, S08, S09, S10, S11, S12

The samples were dried at 105 deg C for 8 hours and then ground using a laboratory ball mill. CLP beaker digestion was used to prepare the samples for ICP analysis.

The digests were analyzed using the JY138 ICP unit along with the JYSED5 analysis method. Run results were stored to file RUN 1111a.

ICP RUN RESULTS

ICP analysis run method JY SED5 is still in the process of being more fully evaluated. As such and until such time when the method does become fully evaluated, former TJA 1160 detection limits and appropriately modified detection limits will be used for reporting and QA evaluation purposes. Based on preliminary evaluation work this approach seems to be a conservative one since the early indications are that the JY 138 detection limits are for the most part comparable if not lower than TJA 1160 values.

Also for QA evaluation purposes, mid range and high AQC check audit acceptance criteria used were 100 ± 10 %R for check audits.

7-8-99

ICP RUN RESULTS (continued)

The following lists the case pertinent out-of-control QC audit check results:

RUN 1111a:

Blanks:	Instr Blank 1:	Zn213,	34.4	µg/L
		V292,	5.3	"
	Digest Blank 1:	Zn213,	20.0	"
	Digest Blank 2:	Sn189,	65.6	"
	Instr Blank 3:	Sn189,	45.0	"
		V292,	6.4	"
		Al308,	- 224	+

+ alternate analyte line used to monitor blank audit

AQC's: AQC 3: Sn189 10.0 % deviation

Laboratory duplicate: 99IE19SO1: Sn189 26% RPD

Matrix Spike: 99IE19S11: Zn481 *

* alternate analyte line used to monitor spike audit

All As results were reported using GFAA data. See GFAA reports. All Pb results were reported using ICP data. All Cd results were reported using ICP data except for 99IE19S02, S11, and S12 for which GFAA data was used; see GFAA analysis results.

Sn is not of concern for this data set.

For Zn, a flagging limit of 20 ppb was chosen. However, for reporting purposes, a 40 ppb limit was used. All Zn sample results were based on the Zn213 line. All Zn sample results are usable.

For V, possible high bias was indicated from blank check audits but all sample V results were high enough so as not to be significantly affected. All V sample results are usable.

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Other Comments

As far as the deliverables are concerned the following were submitted:

- Raw data printouts for RUN 1111a
- QA analysis run summaries for the above RUN
- QA lab duplicate and matrix spike summaries
- individual worksheets showing raw and IEC corrected results
- a table showing a list of IEC factors used to correct raw ICP data

The last two items mentioned above were included since the interelement corrections were applied to the ICP values after the actual ICP analysis run. The QA run summaries, QA duplicate and matrix spike summaries, and the sample analysis data for the analytes reported all used results that were interelement corrected. The IEC corrections were made using matrix algebra methods and Lotus spreadsheet software.

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S01 ANALYZED: 07-Jul-99

STATION: X101

COMPOUND	AMOUNT	(Units)
Aluminum	6200	(mg/kg)
Barium	360	(mg/kg)
Beryllium	0.79	(mg/kg)
Cadmium	2.9	(mg/kg)
Calcium	16000	(mg/kg)
Chromium	9.6	(mg/kg)
Cobalt	5.5	(mg/kg)
Copper	17	(mg/kg)
Iron	58000	(mg/kg)
Lead	74	(mg/kg)
Magnesium	4500	(mg/kg)
Manganese	500	(mg/kg)
Nickel	21	(mg/kg)
Potassium	960	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	260	(mg/kg)
Vanadium	10	(mg/kg)
Zinc	320	(mg/kg)

ANALYZED BY: 7-8-99

12 July 99

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S02 ANALYZED: 07-Jul-99

STATION: X102

COMPOUND	AMOUNT	(Units)
Aluminum	5200	(mg/kg)
Barium	190	(mg/kg)
Beryllium	0.64	(mg/kg)
Calcium	14000	(mg/kg)
Chromium	9.3	(mg/kg)
Cobalt	5.9	(mg/kg)
Copper	12	(mg/kg)
Iron	18000	(mg/kg)
Lead	36	(mg/kg)
Magnesium	5200	(mg/kg)
Manganese	280	(mg/kg)
Nickel	23	(mg/kg)
Potassium	1000	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	190	(mg/kg)
Vanadium	13	(mg/kg)
Zinc	140	(mg/kg)

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S03 ANALYZED: 07-Jul-99

STATION: X103

COMPOUND	AMOUNT	(Units)
Aluminum	17000	(mg/kg)
Barium	300	(mg/kg)
Beryllium	1.2	(mg/kg)
Cadmium	28	(mg/kg)
Calcium	6400	(mg/kg)
Chromium	39	(mg/kg)
Cobalt	11	(mg/kg)
Copper	350	(mg/kg)
Iron	29000	(mg/kg)
Lead	180	(mg/kg)
Magnesium	4200	(mg/kg)
Manganese	200	(mg/kg)
Nickel	330	(mg/kg)
Potassium	2800	(mg/kg)
Silver	1.1 U	(mg/kg)
Sodium	500	(mg/kg)
Vanadium	33	(mg/kg)
Zinc	3500	(mg/kg)

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19D03 ANALYZED: 07-Jul-99

STATION: X103D

COMPOUND	AMOUNT	(Units)
Aluminum	12000	(mg/kg)
Barium	310	(mg/kg)
Beryllium	1	(mg/kg)
Cadmium	28	(mg/kg)
Calcium	6600	(mg/kg)
Chromium	36	(mg/kg)
Cobalt	9.4	(mg/kg)
Copper	540	(mg/kg)
Iron	27000	(mg/kg)
Lead	290	(mg/kg)
Magnesium	3800	(mg/kg)
Manganese	180	(mg/kg)
Nickel	350	(mg/kg)
Potassium	2100	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	450	(mg/kg)
Vanadium	29	(mg/kg)
Zinc	3500	(mg/kg)

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION:

SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL

SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S04

ANALYZED: 07-Jul-99

STATION: X105

COMPOUND	AMOUNT	(Units)
Aluminum	16000	(mg/kg)
Barium	240	(mg/kg)
Beryllium	1.1	(mg/kg)
Cadmium	6.7	(mg/kg)
Calcium	20000	(mg/kg)
Chromium	37	(mg/kg)
Cobalt	8.7	(mg/kg)
Copper	690	(mg/kg)
Iron	23000	(mg/kg)
Lead	170	(mg/kg)
Magnesium	6500	(mg/kg)
Manganese	250	(mg/kg)
Nickel	350	(mg/kg)
Potassium	2800	(mg/kg)
Silver	1.1 U	(mg/kg)
Sodium	320	(mg/kg)
Vanadium	35	(mg/kg)
Zinc	2200	(mg/kg)

ANALYZED BY: [signature] 7-8-99

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S05 ANALYZED: 07-Jul-99

STATION: X106

COMPOUND	AMOUNT	(Units)
Aluminum	10000	(mg/kg)
Barium	160	(mg/kg)
Beryllium	0.84	(mg/kg)
Cadmium	10	(mg/kg)
Calcium	59000	(mg/kg)
Chromium	51	(mg/kg)
Cobalt	6.9	(mg/kg)
Copper	220	(mg/kg)
Iron	15000	(mg/kg)
Lead	550	(mg/kg)
Magnesium	10000	(mg/kg)
Manganese	200	(mg/kg)
Nickel	130	(mg/kg)
Potassium	2000	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	300	(mg/kg)
Vanadium	34	(mg/kg)
Zinc	1700	(mg/kg)

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S06 ANALYZED: 07-Jul-99

STATION: X107

COMPOUND	AMOUNT	(Units)
Aluminum	17000	(mg/kg)
Barium	200	(mg/kg)
Beryllium	1.3	(mg/kg)
Cadmium	4.9	(mg/kg)
Calcium	15000	(mg/kg)
Chromium	53	(mg/kg)
Cobalt	9.2	(mg/kg)
Copper	100	(mg/kg)
Iron	26000	(mg/kg)
Lead	79	(mg/kg)
Magnesium	5700	(mg/kg)
Manganese	830	(mg/kg)
Nickel	72	(mg/kg)
Potassium	2800	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	270	(mg/kg)
Vanadium	53	(mg/kg)
Zinc	820	(mg/kg)

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12 July 99

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S07 ANALYZED: 07-Jul-99

STATION: X108

COMPOUND	AMOUNT	(Units)
Aluminum	17000	(mg/kg)
Barium	400	(mg/kg)
Beryllium	1.4	(mg/kg)
Cadmium	16	(mg/kg)
Calcium	9300	(mg/kg)
Chromium	46	(mg/kg)
Cobalt	14	(mg/kg)
Copper	1600	(mg/kg)
Iron	28000	(mg/kg)
Lead	310	(mg/kg)
Magnesium	4200	(mg/kg)
Manganese	360	(mg/kg)
Nickel	1900	(mg/kg)
Potassium	2600	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	360	(mg/kg)
Vanadium	40	(mg/kg)
Zinc	7800	(mg/kg)

ANALYZED BY: [signature] 7-8-99

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12 July 99

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION:

SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL

SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S08

ANALYZED: 07-Jul-99

STATION: X109

COMPOUND	AMOUNT	(Units)
Aluminum	12000	(mg/kg)
Barium	390	(mg/kg)
Beryllium	1.2	(mg/kg)
Cadmium	31	(mg/kg)
Calcium	9400	(mg/kg)
Chromium	39	(mg/kg)
Cobalt	7.7	(mg/kg)
Copper	4600	(mg/kg)
Iron	27000	(mg/kg)
Lead	430	(mg/kg)
Magnesium	5200	(mg/kg)
Manganese	140	(mg/kg)
Nickel	1700	(mg/kg)
Potassium	2200	(mg/kg)
Silver	8.2	(mg/kg)
Sodium	270	(mg/kg)
Vanadium	38	(mg/kg)
Zinc	8000	(mg/kg)

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12 July 99

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S09 ANALYZED: 07-Jul-99

STATION: X111

COMPOUND	AMOUNT	(Units)
Aluminum	17000	(mg/kg)
Barium	570	(mg/kg)
Beryllium	1.4	(mg/kg)
Cadmium	78	(mg/kg)
Calcium	12000	(mg/kg)
Chromium	57	(mg/kg)
Cobalt	12	(mg/kg)
Copper	2500	(mg/kg)
Iron	38000	(mg/kg)
Lead	560	(mg/kg)
Magnesium	4400	(mg/kg)
Manganese	290	(mg/kg)
Nickel	1000	(mg/kg)
Potassium	2700	(mg/kg)
Silver	4.1	(mg/kg)
Sodium	210	(mg/kg)
Vanadium	37	(mg/kg)
Zinc	6800	(mg/kg)

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S10 ANALYZED: 07-Jul-99

STATION: X112

COMPOUND	AMOUNT	(Units)
Aluminum	19000	(mg/kg)
Barium	370	(mg/kg)
Beryllium	1.4	(mg/kg)
Cadmium	71	(mg/kg)
Calcium	16000	(mg/kg)
Chromium	67	(mg/kg)
Cobalt	12	(mg/kg)
Copper	480	(mg/kg)
Iron	26000	(mg/kg)
Lead	1100	(mg/kg)
Magnesium	6300	(mg/kg)
Manganese	240	(mg/kg)
Nickel	620	(mg/kg)
Potassium	3200	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	290	(mg/kg)
Vanadium	45	(mg/kg)
Zinc	5800	(mg/kg)

ANALYZED BY: 7-8-99

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EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S11 ANALYZED: 07-Jul-99

STATION: X114

COMPOUND	AMOUNT	(Units)
Aluminum	21000	(mg/kg)
Barium	250	(mg/kg)
Beryllium	1.1	(mg/kg)
Calcium	5000	(mg/kg)
Chromium	33	(mg/kg)
Cobalt	8.8	(mg/kg)
Copper	36	(mg/kg)
Iron	28000	(mg/kg)
Lead	42	(mg/kg)
Magnesium	4100	(mg/kg)
Manganese	180	(mg/kg)
Nickel	26	(mg/kg)
Potassium	2100	(mg/kg)
Silver	1.1 U	(mg/kg)
Sodium	150	(mg/kg)
Vanadium	42	(mg/kg)
Zinc	120	(mg/kg)

ANALYZED BY: [signature] 7-8-99

12 July 99

EPA CRL - REGION V
ICP FINAL RESULTS REPORT

REPORT PRODUCED ON: 07-Jul-99

SAMPLE ORGANIZATION: SAMPLE BATCH ID: 990086

LABORATORY: REGION 5 CRL SAMPLE FACILITY: Sauget Area I - Dead Creek

SAMPLE: 99IE19S12 ANALYZED: 07-Jul-99

STATION: X116

COMPOUND	AMOUNT	(Units)
Aluminum	8000	(mg/kg)
Barium	100	(mg/kg)
Beryllium	0.59	(mg/kg)
Calcium	2100	(mg/kg)
Chromium	13	(mg/kg)
Cobalt	6.5	(mg/kg)
Copper	9	(mg/kg)
Iron	13000	(mg/kg)
Lead	18	(mg/kg)
Magnesium	2000	(mg/kg)
Manganese	100	(mg/kg)
Nickel	16	(mg/kg)
Potassium	950	(mg/kg)
Silver	1.2 U	(mg/kg)
Sodium	130	(mg/kg)
Vanadium	19	(mg/kg)
Zinc	62	(mg/kg)

ANALYZED BY: [signature] 7-8-99

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12 July 99

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

August 3, 1999

Ms. Jeanne Griffin
U.S. EPA
Site Assessment Manager
Region V Offices SE-5J
77 West Jackson
Chicago, IL 60604

Dear Ms. Griffin:

Please find the enclosed information collected on June 28 - 30, 1999 from Sauget Area 1 - Dead Creek. The information gathered was to supplement the proposed National Priorities Listing information for the Sauget Area 1 site.

If you have any questions please contact me at 217/524-1663.

Sincerely,

Bruce Everetts
Site Assessment Unit
Federal Sites Remediation Section
Division of Remediation Management
Bureau of Land